NOTES

WE have reason to believe that the scheme for the proposed Indian Government School of Engineering is being warmly combated by the scientific branches of the army, whose counter proposal is that the Royal Military Academy at Woolwich should be made into an equivalent of the *Ecole Polytechnique*, and that young men intended for the engineering service of the Indian Government should be educated there, or better still, officers of the Royal Engineeers should be lent to the Indian Government. On this very important topic we would ask whether the result of the first report of the Royal Commission on Military Education, which is still sitting, has not been to reduce both in quantity and quality, the scientific teaching at Woolwich, which was already so absurdly small, that, mathematics apart, more science might be learned at many commercial academies.

IT will be a long time before England forgets the loss of the *Captain*, though probably when a serious naval engagement does come, the going down of the largest ships, with the loss of all men on board, will be almost a matter of course. But as we have so often heard lately, *à la guerre comme à la guerre*, perhaps a more subdued thrill will then run through us. There seems little doubt that the *Captain* was top-heavy. The fearful rapidity with which, first a roll of 10 deg., then of 22 deg., then of 25 deg., and then a terrible catastrophe were recorded, leave no doubt on this point, and the turrets, the six twenty-five-ton guns, heavy armour, and masts high above the centre of gravity, must bear the blame. Fortunately, however, Captain Moncrieff's last achievement, which we described a few weeks ago, comes to our assistance by abolishing the turrets, and puts the weight of the enormous guns precisely where it is wanted.

THE balloon is becoming a war engine with a vengeance. M. Nadar has been appointed a member of the Committee under the presidency of M. Berthelot, for the scientific defence of Paris, and several captive balloons are to be employed; while we learn from Strasburg that captive balloons are to be used for dropping nitro-glycerine bombs on the powder magazines of the town; the operations are to be conducted by an Englishman named Walter, and Herr Mahler, of Berlin.

THE annual excursion of the London and Middlesex Archæological Society took place on Tuesday last. Notwithstanding the inclemency of the weather there was a numerous attendance.

THE Warwickshire Agricultural Society's annual gathering was held on Tuesday last at Leamington. The Earl of Warwick presided at the annual dinner, which was attended by the representatives of both divisions of the county. As usual at these agricultural meetings, we fail to discover anything in the proceedings calculated to convey any impression to the agricultural mind of the necessary intimate connection between agriculture and science.

A LEADING article in the *British Medical Journal* for Sept. 10 is very severe on the insufficiency of the education at present given to our medical students, and the consequent inferiority, comparatively speaking, of the medical profession in this country. "The miserable inferiority in scientific research; the dearth of original work, the want of exactness, the poverty of physiological investigation, the ignorant impatience of practical detail which we all have to deplore so much in the mass of professional work at this day, are due to the inadequate preliminary cultivation of our students; to their defective training in scientific method; the small base on which the pyramid of medical lore is made to stand. The solemn deprecation of excessive devotion to microscopical research; the empty sneer at chemical physic; the idle and mischievous disregard of instruments of precision—the sphygmograph, the thermometer, the laryngoscope, the ophthalmoscope—are all the expressions of a Philistine ignorance. . . The inferiority of English to German medicine is due to this inferiority of preliminary training." Judging from the letters we have received, medical men here are very indignant at the strictures on English medical training contained in the two articles by Professor Stricker, recently printed in our columns. This is what one of their own journals says on the subject. Here is food for thought for the members of our Science Commission during the recess.

THE editor of the *Gardeners' Magazine* offers a prize of twenty guineas for the best essay on irrigation as applied both to the farm and the garden. There is probably no question of greater material importance to England at the present time. A system of storage and irrigation by which the superfluous rain that falls in autumn and winter, frequently carrying devastation in its course, could be intercepted, stored, and applied to the fertilisation of the soil between May and August, would ensure to the farmer, and consequently to the country, a gain that would be simply incalculable in such summers as the one we have just experienced.

THE Museum of Natural History in Madison University, New York, has had its valuable collection lately classified and arranged. Among its most valuable possessions are reckoned the collection of tropical and other rare birds collected by Prof. Bickmore; a group of gay beautiful plumaged birds brought from the Spice Islands, are especially noticeable. There is also a good collection of North American birds.

MR. J. J. BENNETT, the Curator of the Botanical Department of the British Museum, has just issued his annual report for 1869. The principal business done in the department during the year has been:—The rearrangement of a portion of the presses of the general herbarium; the rearrangement of certain orders of *Apetalæ* and *Endogens*, and of the lichens, both British and foreign, with numerous additions to each; the selection of a very large number of specimens from the herbarium of the late Mr. N. B. Ward, and from the collection of Abyssinian plants send by Dr. Schimper through the Foreign Office; the naming, arranging, and laying into the general herbarium of Berlandier's Mexican collection, of Linden's collection from New Granada, Tate's from Nicaragua, Coulter's from California, Sartwell's *Carices* of North America, Wright's collections from the Neilgherry Hills and from India generally, Jameson's from the Andes of Quito, *Orchideæ* from different countries, ferns from the islands of the South Pacific, and of a large number of miscellaneous specimens of various families and from different countries; the examination and arrangement of the recent and fossil *Coniferæ* and *Cycadeæ*, and of Mr. Brown's collection of fossil woods; the arrangement and incorporation in the general herbarium of a large number of European plants; the rearrangement of various portions of the British herbarium, and of the collection of fruits and seeds; and the rearrangement of various parts of the collection contained in the Exhibition Rooms, and especially of the cases containing *Coniferæ* and *Cacteæ*, with large additions. The most important additions to the collection during the year have been:—Upwards of 1,000 European plants from the collection of Dr. Rostan and the late Mr. N. B. Ward; 900 plants of Ingermannland; 300 from Sicily; 200 European fungi; 200 Italian cryptogams; 3,000 plants of Abyssinia, collected by Dr. Schimper; more than 3,000 plants of South Africa, from Mr. Ward's collection; upwards of 500 from Madeira, collected by Lemann and others; nearly 1,000 from the mountains of Altai; 1,000 from India, collected by Dr. Wright; 400 from Malacca, collected by Griffith; 100 from the Feejee Islands, collected by Harvey; 1,000 from North America; 400 fungi of South Carolina; 300 plants from Nicaragua, collected by Tate; 700

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from the Andes of Quito; a fine set of pine cones from California; numerous specimens of plants and fruits, chiefly from Africa. The number of visits paid to the herbarium during the year for purposes of scientific research was 974.

WE have already signs of the opening of the medical session on the 1st of October next. The number of the *Chemical News* for Sept. 9th is devoted to a very useful summary of the requirements of the various examining bodies in this country in chemistry and physics, and of the courses of lectures and laboratory instruction given at the different colleges and medical schools in London and the provinces. The *British Medical Journal* for Sept. 10th also gives the regulations of the General Medical Council, and Medical licensing bodies, and notes concerning the hospitals and medical schools.

WITH reference to the paragraph in our last number respecting the use of ammonia in Victoria as a cure for snake-bite, we learn that the inhabitants of that colony are so deeply impressed with the great practical value of the discovery, that they are collecting subscriptions for a fitting testimonial to present to Dr Halford, who was the first to suggest and carry out this mode of treatment. Any contributions for this object will be received by Dr. G. E. Day, of Furzewell House, Torquay, who states that it has been the means of saving a number of cases in an apparently hopeless state of collapse.

SOME important experiments are now been conducted with the new description of torpedo submitted to the Government by Mr. Whitehead. The *Oberon* yesterday floated out of dock at Chatham, and will be sent round to Shoeburyness, where the experiments, which are to be carried out under the superintendence of a commission, of which Lieutenant-Colonel Nugent, Royal Engineers, is the president, are to take place. The wooden vessel to be operated upon with the torpedoes, which are fired from the stem of the *Oberon* beneath the water, is *L'Aigle*, which has been placed at the disposal of the committee by the Admiralty for that purpose. These torpedoes are *locomotive*, the motive power being compressed air, and already the results obtained are surprising. The minutes of evidence taken before the select committee on the Abyssinian expedition are published this morning. They fill a blue-book of 600 pages.

A BOTTLE-NOSED whale, measuring eighteen feet in length by eight feet in girth, came ashore near Burntisland, on the Scotch coast, on Thursday afternoon last. It was drawn up on to the beach while still alive. It is to be hoped that some museum will see about securing the skeleton of this whale; it would be a very welcome addition to many museums, and could, we should think, be obtained for a small cost.

THE extreme rarity of well-authenticated examples of the parasitism of the mistletoe on the oak has induced Dr. Bull, of Hereford, to collect the known instances, which he finds to be eight in number, viz., three in Herefordshire, and one each in Gloucestershire, Monmouthshire, Devonshire, Hants, and Surrey. In the most recently-discovered instance, in the Forest of Deerfold in Herefordshire, the mistletoe was found on an oak of the variety *sessiliflora*, some fifty or sixty years old; it is a female plant, growing high up on the main stem, and forming a large spreading branch with a diameter of three-and-a-half feet, and springing from the oak in a single stem nearly four inches in circumference. The mistletoe also grows on a thorn close by, and has probably sprung from a seed dropped by a bird from above.

A NEW process for making steel has been discovered in America, by means of which it is stated that American steel can be made equal to that usually imported into that country. It is manufactured from a peculiar iron ore found in Codorus township, Pennsylvania. The iron is mixed in a reverberatory furnace with middling pig-iron in the proportion of one to six. It is hoped by means of this valuable discovery to manufacture steel rails at a cost of about sixty dollars per ton.

THE BRITISH ASSOCIATION.—LIVERPOOL MEETING, 1870

AS we go to press the great annual scientific meeting has already commenced; and although the President is at the present moment actually delivering his opening address, we are able, through Prof. Huxley's kindness, to give our readers a verbatim report. We believe it will be found to rank in interest and importance along with any of its predecessors. We are also able to give Prof. Roscoe's Address to Section B; the Kew Report lack of space compels us to defer till next week. We have already given the particulars of the places of meeting and officers of the various sections. Not much remains to be added: by the time this is in the hands of our readers the meeting will be in full swing, and those who are attending it will already be at home in all the various arrangements. Among the most interesting occasions will doubtless be Sir John Lubbock's lecture to working men. The Mayor's reception at the Town Hall, continued for two successive evenings, though not open to all who show the ticket of the Association, is virtually so. All who have arrived in time will receive a formal invitation; and any omission, if such occur, will rest with those who should promptly send forward the names. Another entertainment is that to be given in the Philharmonic Hall on Saturday evening, the 17th, by Dr. E. R. Bickersteth. Besides giving a subscription on the largest scale to the local fund, he will entertain about 700 strangers and 300 of our own townspeople. Eight excursions have been arranged for Thursday, September 22nd, in connection with the Association. The first of these is to Cefn Hall, near St. Asaph, where the party will be received at a luncheon by Mrs. Williams Wynne; the excursionists will start from the George's Landing Stage by the railway boat. An excursion party will also leave for Chester by the same boat. An excursion party to Crewe Works will leave the Lime Street Station by an early train. The guests, whose number is limited to one hundred, are invited to a luncheon at Crewe, provided by the London and North Western Railway Company. A fourth excursion will be to Llandudno, and will start from the Prince's Landing Stage in the *Eblana*, kindly lent for the occasion by the City of Dublin Steam Packet Company. Dinner and tea will be provided on board the vessel at hours most convenient to the excursionists. Another party will leave the George's Landing Stage for Llangollen, and have luncheon at the Hand Hotel, Llangollen. A sixth excursion will visit Widnes, where there will be a dinner in the public hall, by invitation of the Widnes committee of reception. There will likewise be an excursion to Wigan, and an excursion up and down the River Mersey. In Liverpool many of the chief works, manufactories, and public institutions will be open to the inspection of the members of the Association all through the week. Among the papers intended to be read, the titles of which have already reached us, the following are among the most interesting:—In Section A, Francis Galton, F.R.S., "Barometric Predictions of Coming Weather."—John J. Hall, "A new Electro-magnetic Electrometer."—A. W. Bickerton, "A new Heat Engine."—W. Rowett, "Ocean Telegraphy."—Henry Hudson, Glenville, Fermoy, Ireland, "On the Wave Theories of Light."—Dr. Joseph Henry, Smithsonian Institution, Washington, U.S.A., who will be present at the meeting, "On the Rainfall of the United States."—R. S. Ball, Royal College of Science, Dublin, "The small Oscillations of a Rigid Body."—S. Hewett, Marlborough, Wilts, "The Earth's Centre of Gravity, Axis of Revolution, and Magnetic Axis or Centre."—W. M. Watts, "The Existence of two Spectra produced by Carbon incandescent at the same Temperature."—In Section B, C. R. Tichborne, F.C.S., "On the Action of Street Dust as a Ferment."—W. H. Perkin, "On Artificial Alizarine."—A. H. Church, "Experiments on the Preservation of Stone," "Contributions to Mineralogical Chemistry."—John G. Macvicar, "On the Structure and Form of an Atom of Moisture" (illustrated by models).—J. H. Lloyd, M.D., Anglesea, "On the Dry System of Sewage."—In Section C, J. Logan Lobley, "On the Stratigraphical Distribution of the British Fossil Gas-

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